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EXAMINER

EPPERSON, JON D

ART UNIT	PAPER NUMBER
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1639

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/817,009

Applicant(s)

LYLES, MARK B.

Examiner

Jon D. Epperson

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1639

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,7-10,13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,7-10,13 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Application

1. The Response filed November 18, 2005 is acknowledged.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

Status of the Claims

3. Claims 1, 3, 4, 7-10, 13 and 14 were pending. Claims 1, 7 and 8 were amended. No claims were added or canceled. Therefore, claims 1, 3, 4, 7-10, 13 and 14 are examined on the merits.

Withdrawn Objections/Rejections

4. The rejections under 35 U.S.C. 112, second paragraph are withdrawn in view of Applicant's amendments and/or arguments. The rejections under 35 U.S.C. 112, first paragraph are withdrawn in view of Applicant's amendments and/or arguments. All other rejections are maintained and the arguments are addressed below.

Outstanding Objections and/or Rejections

Claim Rejections - 35 USC § 103

5. Claims 1, 3, 4, 7-10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glazer et al. (Glazer, M.; Frank, C.; Vinci, R. P.; McGali, G.; Fidanza, J.; Beecher, J. "High

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surface area substrates for DNA arrays” *Materials Research Society Symposium Proceedings* 1999, 576, 371-376) and Yasukawa, et al. (U.S. patent No. 5,629,186).

For **claim 1**, Glazer et al. (see entire document) disclose high surface area substrates for DNA arrays (see Glazer et al., abstract), which reads on claim 1. For example, Glazer et al. disclose two-dimensional arrays of biomolecules that contain at least 100 different molecules on a porous substrate at predefined regions (see Glazer et al., pages 371-2, Introduction; see also figure 1-2).

For **claims 10, 13 and 14**, Glazer et al. disclose both oligonucleotides and DNA (e.g., see Glazer et al., pages 371-2, Introduction). Although Glazer et al. does not explicitly disclose RNA, the reference does teach the genus oligonucleotides which only contains two possible species i.e., DNA or RNA and, as a result, the species RNA would be rendered obvious (e.g., see *In re Schauman*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978), wherein claims to a specific compound were anticipated because the prior art taught a generic formula embracing a limited number of compounds closely related to each other in structure and the properties possessed by the compound class of the prior art was that disclosed for the claimed compound). Here, the genus contains only RNA and DNA and they are closely related in structure because they only differ by one –OH group.

The prior art teachings of Glazer et al. differ from the claimed invention as follows:

For **claim 1**, Glazer et al. are deficient in that they do not teach a fused fiber porous material that is manufactured from alumina fibers, silica fibers, and a fusion source. Glazer et al. only recite porous materials that are 67.4% SiO₂, 25.7% B₂O₃ and

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6.9% Na₂O (see Glazer et al., page 372, Experiment, Sodium borosilicate glass; see also page 372, paragraphs 2-4). Furthermore, the Glazer reference is deficient in that it does not specifically recite a pore radius e.g., greater than about 10 microns. Glazer et al. are also deficient in that they do not specifically recite the limitation that the porous material must be at least about 6 pounds per cubic foot.

For **claims 3 and 4**, Glazer et al. are deficient in that it does not specifically recite that the porous material can comprise fused fibers of alumina, silica and a fusion source like boron. Furthermore, Glazer et al. also does not recite that the porous material can be made from a compositions comprising about 1% to about 50% by weight alumina, about 50% to about 98% by weight silica, and about 1% to about 5% by weigh boron. Glazer et al. only recites that materials that are 67.4% SiO₂, 25.7% B₂O₃ and 6.9% Na₂O (see Glazer et al., page 372, Experiment, Sodium borosilicate glass; see also page 372, paragraphs 2-4).

For **claims 7-9**, Glazer et al. are deficient in that it does not specifically recite the that the percentage of exposed surface is at least about 50%, 75% or 95% silicon dioxide.

However, Yasukawa, et al. teach the following limitations that are deficient in Glazer et al.:

For **claim 1**, Yasukawa et al. teach fused fibrous ceramic materials that are prepared from amorphous silica and/or alumina fibers with 2 to 12 % boron nitride (e.g., see Yasukawa, et al., abstract). Yasukawa et al. disclose the “silica fibers have ... fiber diameters between about 5 to 20 μm” (e.g., see column 1, lines 34-35 wherein 20 μm >>

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10 μm). Yasukawa et al. disclose the “silica fibers have ... fiber diameters between about 5 to 20 μm ” (e.g., see column 1, lines 34-35 wherein 20 μm >> 10 μm).

Yasukawa et al. do not explicitly state that their mean pore diameter is greater than 10 microns. However, the Examiner contends that this would be inherently disclosed by the reference because Yasukawa et al. teaches the same porous material composed from silica, alumina and boron wherein the composition by weight is about 1% to about 50% by weight alumina, about 50% to about 98% by weight silica, and about 1% to about 5% by weight boron (e.g., see Yasukawa et al., column 3, lines 66-67, “80 percent of fiber weight of silica fibers and 20 percent by fiber weight of alumina fibers”; see also column 2, lines 4-6, “boron nitride particles, in an amount between about 2-12 percent by weight of the total fiber weight”). In addition, Yasukawa et al. disclose that said density is greater than six pounds per cubic foot (e.g., see claim 8; see also column 1, line 29).

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). See MPEP § 2112.01. The Office does not have the facilities to make such a comparison and the burden is on the applicants to establish the difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *Ex parte Gray*, 10 USPQ 2d 1922 1923 (PTO Bd. Pat. App. & Int.).

For *claims 3 and 4*, Yasukawa et al. teach porous materials with silica, alumina and boron wherein the composition by weight is about 1% to about 50% by weight alumina, about 50% to about 98% by weight silica, and about 1% to about 5% by weight boron (e.g., see Yasukawa et al., column 3, lines 66-67, “80 percent of fiber weight of silica fibers and 20 percent by fiber weight of alumina fibers”; see also column 2, lines 4-6, “boron nitride particles, in an amount between about 2-12 percent by weight of the total fiber weight”).

For *claims 7-9*, Yasukawa, et al. does not disclose the % silicon dioxide at the exposed surface, but the material is produced using the same alumina/silica fibers and the same boron source in the same proportions and, as a result, would be expected to possess the same % silicon dioxide at the exposed surface as that claimed by Applicants. “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The Office does not have the facilities to make such a comparison and the burden is on the applicants to establish the difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *Ex parte Gray*, 10 USPQ 2d 1922 1923 (PTO Bd. Pat. App. & Int.).

It would have been obvious to one skilled in the art at the time the invention was made to use the porous materials disclosed by Yasukawa et al. with the invention as disclosed by Glazer et al. because Glazer explicitly state that porous materials can be used to increase the number of immobilized probe molecules in DNA arrays (e.g., see Glazer et al, page 372, paragraph 2, “Porous surface layers are a potential routes to

increasing the signal from DNA arrays, as they increase the total surface area on which probes can be attached, and hence the capacity for bound target molecules”), which would encompass the porous materials disclosed by Yasukawa. In addition, a person of skill in the art would have been motivated to use the porous material disclosed by Yasukawa et al. because Glazer et al. states, “Inorganic surfaces have the advantage that they are similar to the original glass substrate, so that array fabrication protocols can be used”, which would encompass the “inorganic” silica/alumina fibers disclosed by Yasukawa et al. Yasukawa et al. also state that their matrix has “relatively larger pores” (e.g., see column 1, line 36) that liquid samples could more easily penetrate. In addition, a person of skill in the art would have reasonable expected to be successful because Yasukawa et al. state that the “silica fibers may be derivatized with molecules effective to bind ligand molecules passed through the matrix” (e.g., see column 1, lines 55-56; see also figures 13A-B; see also column 1, lines 49-50, “the matrix may be coated with a biocompatible material at its outer surface”), which would be required for the fabrication of a biological array.

6. Claims 1, 3, 4, 7-10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al. (U.S. Pat. No. 5,959,098) (Filing Date is **April 17, 1996**) and Yasukawa, et al. (U.S. patent No. 5,629,186).

For *claim 1*, Goldberg et al (see entire document) disclose a substrate for the attachment of an array of greater than 100 different biomolecules bound to different predetermined regions of the surface of the porous material (see Goldberg et al., column

6, section IV), which anticipates claim 1. For example, Goldberg et al discloses a two-dimensional array comprising molecules bound to the material surface (see Goldberg et al, column 6 lines 50-57, see also column 6 last paragraph). Goldberg et al also discloses that said material surface may be porous (see Goldberg et al, column 6, lines 39-49, “Silica aerogels may also be used as substrates ... Porosity may be adjusted by altering reaction conditions by methods known in the art”). Goldberg also discloses that at least 100 different molecules may be bound to the surface of the porous material in different predetermined regions (see Goldberg et al, column 2, lines 2-4, “Each polymer array includes a plurality of different polymer sequences coupled to the surface of the substrate wafer in a different known location”) (see also columns 9-14, section V; see especially column 10, last paragraph, “Using the above described methods, arrays may be prepared having all polymer sequences of a given length ... For an array of 8mer or 10mer oligonucleotides, such arrays could have upwards of about 65,536 and 1,048,576 different oligonucleotides respectively”).

For *claims 10, 13 and 14*, Goldberg et al discloses an array of oligonucleotides (see Goldberg et al, columns 9-14, section V; see especially column 10, last paragraph, “Using the above described methods, arrays may be prepared having all polymer sequences of a given length ... For an array of 8mer or 10mer oligonucleotides, such arrays could have upwards of about 65,536 and 1,048,576 different oligonucleotides respectively”), which anticipates claim 10. Furthermore, Goldberg discloses nucleic acids, a broad term, which would encompass both RNA and DNA. Furthermore, the chemistry for the solid-phase synthesis of both RNA and DNA via modification of the

silanol groups is well known in the art. “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The Office does not have the facilities to make such a comparison and the burden is on the applicants to establish the difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *Ex parte Gray*, 10 USPQ 2d 1922 1923 (PTO Bd. Pat. App. & Int.).

The prior art teachings of Goldberg et al. differ from the claimed invention as follows:

For **claim 1**, Goldberg et al. are deficient in that they do not teach a fused fiber porous material that is manufactured from alumina fibers, silica fibers, and a fusion source. Furthermore, the Goldberg reference is deficient in that it does not specifically recite a pore radius e.g., greater than about 10 microns. Goldberg et al. only teach generally that the porosity may be adjusted using known methods in the art (see Goldberg et al., column 6, lines 39-49). Goldberg et al. are also deficient in that they do not specifically recite the limitation that the porous material must be at least about 6 pounds per cubic foot.

For **claims 3 and 4**, Goldberg et al. is deficient in that it does not specifically recite that the porous material can comprise alumina, silica and boron. Furthermore, Goldberg et al. also does not recite that the porous material can be made from a compositions comprising about 1% to about 50% by weight alumina, about 50% to about 98% by weight silica, and about 1% to about 5% by weigh boron. Goldberg et al. only

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recites that that “[p]referred substrates generally comprise planar crystalline substrates such as silica based substrates” (see Goldberg et al., column 6, lines 30-31).

For **claims 7-9**, Goldberg et al. is deficient in that it does not specifically recite the that the percentage of exposed surface is at least about 50%, 75% or 95% silicon dioxide.

However, Yasukawa, ET AL. teach the following limitations that are deficient in Goldberg et al.:

For **claim 1**, Yasukawa et al. teach fused fibrous ceramic materials that are prepared from amorphous silica and/or alumina fibers with 2 to 12 % boron nitride (e.g., see Yasukawa, et al., abstract).

Yasukawa et al. do not explicitly state that their pore diameter is greater than 10 microns. However, the Examiner contends that this would be inherently disclosed by the reference because Yasukawa et al. teaches the same porous material composed from silica, alumina and boron wherein the composition by weight is about 1% to about 50% by weight alumina, about 50% to about 98% by weight silica, and about 1% to about 5% by weight boron (e.g., see Yasukawa et al., column 3, lines 66-67, “80 percent of fiber weight of silica fibers and 20 percent by fiber weight of alumina fibers”; see also column 2, lines 4-6, “boron nitride particles, in an amount between about 2-12 percent by weight of the total fiber weight”). In addition, Yasukawa et al. disclose that said density is greater than six pounds per cubic foot (e.g., see claim 8; see also column 1, line 29). Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes,

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a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). See MPEP § 2112.01.

For **claims 3 and 4**, Yasukawa et al. teach porous materials with silica, alumina and boron wherein the composition by weight is about 1% to about 50% by weight alumina, about 50% to about 98% by weight silica, and about 1% to about 5% by weight boron (e.g., see Yasukawa et al., column 3, lines 66-67, “80 percent of fiber weight of silica fibers and 20 percent by fiber weight of alumina fibers”; see also column 2, lines 4-6, “boron nitride particles, in an amount between about 2-12 percent by weight of the total fiber weight”).

For **claim 5**, Yasukawa et al. disclose the “silica fibers have ... fiber diameters between about 5 to 20 μm ” (e.g., see column 1, lines 34-35 wherein 20 μm >> 10 μm).

For **claim 6**, Yasukawa et al. disclose that the matrix may have a density of 3.5 to 12 pounds per cubic foot which is “at least about” 6 pounds per cubic foot (e.g., see claim 8; see also column 1, line 29)

For **claims 7-9**, Yasukawa, et al. does not disclose the % silicon dioxide at the exposed surface, but the material is produced using the same alumina/silica fibers and the same boron source in the same proportions and, as a result, would be expected to possess the same % silicon dioxide at the exposed surface as that claimed by Applicants. “When the PTO shows a sound basis for believing that the products of the applicant and the prior

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art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The Office does not have the facilities to make such a comparison and the burden is on the applicants to establish the difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *Ex parte Gray*, 10 USPQ 2d 1922 1923 (PTO Bd. Pat. App. & Int.).

It would have been obvious to one skilled in the art at the time the invention was made to use the porous materials disclosed by Yasukawa et al. with the invention as disclosed by Goldberg et al. because Goldberg et al. explicitly state that “[p]referred substrates generally comprise planar crystalline substrates such as silica based substrates” (see Goldberg et al., column 6, lines 30-31), which would encompass the silica based substrates disclosed by Yasukawa et al. (i.e., the silica/alumina/boron substrates). In addition, a person of skill in the art would have been motivated to use the porous material disclosed by Yasukawa et al. because silica/alumina/boron substrate disclosed by Yasukawa et al. has “relatively larger pores” (e.g., see column 1, line 36) that liquid samples could more easily penetrate. In addition, a person of skill in the art would have reasonable expected to be successful because Yasukawa et al. state that the “silica fibers may be derivatized with molecules effective to bind ligand molecules passed through the matrix” (e.g., see column 1, lines 55-56; see also figures 13A-B; see also column 1, lines 49-50, “the matrix may be coated with a biocompatible material at its outer surface”), which would be required for the fabrication of a biological array.

Response

7. Applicant's arguments directed to the above 35 U.S.C. § 103(a) rejection were fully considered (and are incorporated in their entirety herein by reference) but were not deemed persuasive for the following reasons. Please note that the above rejection has been modified from its original version to more clearly address Applicant's newly amended and/or added claims and/or arguments.

[1] Applicant argues, "Claim 1 has been amended to emphasize that the presently claimed embodiment of the invention is directed to a 'high throughput screening array,' not just to an array. In furtherance of this emphasis, Applicant has amended claim 1 to specify that the porous material has a mean pore diameter greater than about 10 microns, and consists of a density of 6 pounds per cubic foot or higher" (see 11/18/05 Response, page 4, paragraph 1).

[2] Applicant argues, "Neither Glazer et al. nor Yasukawa et al. disclose and/or suggest ... a porous material for a high throughput array ... Glazer et al. teaches, 'Pore dimensions ... as 0.1 to 0.3 microns;' and ... Yasukawa et al. teach nothing in relation to 'pore dimensions.' The Examiner notes that Yasukawa teaches silica fibers having 'diameters between about 5 to 20 μm .' This statement does not teach a porous material having a 'mean pore diameter of at least about 10 microns.' (e.g., see 11/18/05 Response, page 4).

[3] Applicant argues, "It is respectfully submitted that a full reading of Yasukawa et al. leads to the conclusion that the material always must include a portion having a density ranging from about '3.5 and 5.5 pounds/ft³ ... Even Claim 8 [which recited 5.5 to 12 pounds/ft³] requires that the matrix contain a specific portion having a density at or below 5.5 pounds/ft³ ... Whereas,

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the presently claimed embodiment of the invention is directed to a porous material having a density of '6.0 pounds per cubic foot and higher.'" (e.g., see 11/18/05 Response, pages 5 and 6).

[4] Applicant argues, "Claim 8 ... [is] not supported by the Yasukawa et al.'s specification [and] is dependent on Claim 1 which requires ... 3.5 to 5.5 pounds/ft³" (e.g., 11/18/05 Response, page 5, last paragraph).

[5] Applicant argues, "The presently claimed material 'consists of a density of about 6 pounds per cubic foot and higher.' Thus, material having densities below 6 pounds per cubic foot are excluded by this language." (e.g., see 11/18/05 Response, page 6, second to last paragraph).

[6] Applicant argues, "Yasukawa et al. require that their materials ALWAYS include a portion having a density of 3.5 to about 5.5 pounds per cubic foot. The range cited by the Examiner for Yasukawa (up to 12 pounds per cubic foot) relates to a material with a gradient density, that is, it must have portions with a density as low as 3.5 to 5.5 pounds per cubic foot. The presently claimed material does not cover a material with a portion having a density as low as 3.5 to 5.5 pounds per cubic foot" (e.g., see 11/18/05 Response, page 6, second to last paragraph).

[7] Applicant argues, "Yasukawa et al. for the reasons stated above, does not teach the presently claimed subject matter ... Thus, the Examiner has failed to establish a prima facie case of obviousness" (e.g., see 11/18/05 Response, page 6, last paragraph).

This is not found persuasive for the following reasons:

[1] The Examiner respectfully disagrees with this characterization. First, the Examiner notes that Applicant's claims don't recite a "high throughput" limitation. Second, Applicant's

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specification fails to teach what characteristics distinguish a “high throughput” array from any other. In fact, with the exception of Applicant’s title, the specification never mentions the term.

[2] In response to applicant's argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., “at least about” 10 microns) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In addition, Applicants have fail to explain why the recited limitation is Yasukawa fails to teach the claimed limitations. Thus, Applicant’s arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Finally, the Examiner notes Yasukawa et al. inherently disclosed the claimed limitations by disclosing the same porous material composed from silica, alumina and boron wherein the composition by weight is about 1% to about 50% by weight alumina, about 50% to about 98% by weight silica, and about 1% to about 5% by weight boron (e.g., see Yasukawa et al., column 3, lines 66-67, “80 percent of fiber weight of silica fibers and 20 percent by fiber weight of alumina fibers”; see also column 2, lines 4-6, “boron nitride particles, in an amount between about 2-12 percent by weight of the total fiber weight”). In addition, Yasukawa et al. disclose that said density is greater than six pounds per cubic foot (e.g., see claim 8; see also column 1, line 29). Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a

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prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). See MPEP § 2112.01. The Office does not have the facilities to make such a comparison and the burden is on the applicants to establish the difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *Ex parte Gray*, 10 USPQ 2d 1922 1923 (PTO Bd. Pat. App. & Int.).

[3] Applicant’s use of “comprising” language does not preclude other areas from having “less than” about six pounds per cubic foot. That is, only the area that contains 100 different molecules need “consist of” a density of about six pounds per cubic foot and higher. Thus, Applicant’s claims “comprise” arrays that contain “both” low and high-density materials. In addition, Yasukawa et al. explicitly state that their claimed invention contains 5.5 to 12 pounds/ft³, which meets the current limitation of about 6 pounds/ft³ and higher.

[4] “When the reference relied on expressly anticipates or makes obvious all of the elements of the claimed invention, the reference is presumed to be operable. Once such a reference is found, the burden is on applicant to provide facts rebutting the presumption of operability. *In re Sasse*, 629 F.2d 675, 207 USPQ 107 (CCPA 1980)” (see also MPEP § 2121, “prior art is presumed to be operable/enabling”). Here, Applicants have not met their burden for rebutting the presumption of operability especially when the disputed limitation occurs in a patent claim, as is the case here.

[5] The Examiner respectfully disagrees. The phrase “consists of a density of about 6 pounds per cubic foot and higher” is ambiguous at best and certainly doesn’t negate the plain meaning of the word “about” (e.g., see 35 U.S.C. 112, second paragraph rejection below), which would provide for values that are both above and below 6 pounds per cubic foot.

[6] Applicant’s use of comprising terminology does not preclude the use of a “gradient” as purported. In addition the “about 5.5” pounds/ft³ recited by Yasukawa renders obvious Applicants’ claimed “about 6” pounds/ft³ (see 35 U.S.C. 112, second paragraph rejection below).

[7] To the extent that Applicant is simply repeating his previous arguments; the Examiner contends that those points were adequately addressed in the previous sections (which are incorporated in their entirety herein by reference).

Accordingly, the 35 U.S.C. § 103(a) rejection cited above is hereby maintained.

New Rejection

Claims Rejections - 35 U.S.C. 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1, 3, 4, 7-10, 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. For *claim 1*, the phrase “consists of a density of about six pounds per cubic foot and higher” is vague and indefinite. For example, it is not clear whether the “about six pounds per cubic foot” is being used to limit the entire array or just the part of the array

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that contains the 100 different molecules. That is, Applicant's use of "comprising" terminology implies that other areas do not need to contain this limitation. However, Applicant's arguments state just the opposite (e.g., see 11/18/05 Response, page 6, second to last paragraph, "material having densities below 6 pounds per cubic foot are excluded by this language") (emphasis added). In addition, it is also unclear how use of the term "consists of" would exclude materials "below" 6 pounds per cubic foot as the term "about" sets forth a range of values (i.e., above and below the recited value). In addition, the Examiner notes that there are situations wherein "the word 'about' may lead to indefiniteness under Section 112, Para. 2." *Eiselstein v. Frank*, 52 F.3d 1035, 1040, 34 USPQ2d 1467, 1471 (Fed. Cir. 1995) (citing *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1218, 18 USPQ2d 1016, 1031 (Fed. Cir. 1991)). One such situation is "especially when, as is the case here, there is close prior art. . . ." (e.g., see *Amgen*, 927 F.2d at 1218, 18 USPQ2d at 1031). In the present case, many passages of Yasukawa cite "about 5.5 pounds/ft³" (e.g., see 11/18/05 Response, pages 4-5), which is very close to Applicant's currently claimed "about six pounds", which renders the claim indefinite in view of *Amgen, Inc. v. Chugai Pharm. Co.* Furthermore, Applicant's specification provides no guidance for ascertaining what constitutes "about" six pounds per cubic foot. Therefore, claims 1 and all dependent claims are rejected under 35 U.S.C. 112, second paragraph.

Conclusion

Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon D Epperson whose telephone number is (571) 272-0808. The examiner can normally be reached Monday-Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jon D. Epperson, Ph.D.
February 20, 2006

A handwritten signature in black ink, appearing to read 'Andrew Wang', with a large, stylized loop at the end.

ANDREW WANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600